

CLAIMS

What Is Claimed Is:

1. A wedge-shaped member, configured to fit between core poles of a generator to restrain coil windings from moving under centrifugal force, comprising:
 - a first plate having at least one through-hole;
 - a second plate positioned opposite the first plate and positioned at an angle relative to the first plate; and
 - one or more reinforcing members coupled between the first plate and the second plate and substantially perpendicular to the first plate and second plate.
2. The wedge-shaped member of claim 1 further comprising a third plate having a first longitudinal edge and a second longitudinal edge, the first longitudinal edge of the third plate coupled along a first longitudinal edge of the first plate and the second longitudinal edge of the third plate coupled to a first longitudinal edge of the second plate.
3. The wedge-shaped member of claim 2 wherein the first and second plates are substantially rectangular and the one or more reinforcing members are plates extending from a second longitudinal edge of the first plate and a second longitudinal edge of the second plate to the third plate.
4. The wedge-shaped member of claim 1 wherein the at least one through-hole permits a quantity of bonding material to pass to restrain the coil windings.
5. The wedge-shaped member of claim 1 wherein the second plate also includes at least one through-hole.

6. A generator comprising:
 - a rotor frame;
 - a first and second of core poles coupled to the rotor frame;
 - a coil wound around the first core pole; and
 - a wedge-shaped member positioned between the first core pole and the second core pole to support the coil on the first core pole as the rotor frame is rotated, the wedge-shaped member including
 - a first plate abutting the first core pole,
 - a second plate abutting the second core poles, and
 - one or more cross members coupled between the first plate and the second plate.
7. The generator of claim 6 wherein the rotor frame is substantially cylindrical and has a first axis of rotation, the first and second of core poles extending radially from the rotor frame along the length of the rotor frame.
8. The generator of claim 6 further comprising a second coil wound around the second core pole.
9. The generator of claim 6 wherein the first core pole has a core pole tip that is wider than the core pole, the core pole tip configured to secure the wedge-shaped member in place.
10. The generator of claim 6 wherein the wedge-shaped member has a substantially trapezoidal cross-sectional area.
11. The generator of claim 10 further comprising a third plate coupled between a first edge of the first plate and a first edge of the second plate, the third plate positioned along the short side of the trapezoidal wedge-shaped member to abut the rotor frame.
12. The generator of claim 11 wherein the third plate has a curvature that conforms to the rotor frame.

13. The generator of claim 6 wherein the first plate, the second plate and the one or more cross members define one or more cavities within the wedge-shaped member.
14. The generator of claim 6 wherein the first plate includes one or more passages extending from a first surface to a second surface.
15. The generator of claim 14 wherein the coil wound around the first core pole is restrained by a bonding material impregnated between the coil and the one or more passages through the first plate.
16. The generator of claim 6 further comprising one or more bands configured to couple around the circumference of the rotor frame and secure the wedge-shaped member to the rotor frame.
17. A generator comprising:
- a substantially cylindrical rotor frame;
 - a plurality of core poles coupled around the rotor frame, the plurality of core poles extending radially from the rotor and having core pole tips that are wider than the core poles;
 - a coil wound around a first core pole of the plurality of core poles; and
 - a wedge-shaped member positioned between the first core pole and a second core pole to support the coil on the first core pole as the rotor frame is rotated, the wedge-shaped member including
 - a first plate having a plurality of through-holes, the first plate abutting the first core pole,
 - a second plate abutting the second core pole,
 - a third plate having a first longitudinal edge and a second longitudinal edge, the first longitudinal edge of the third plate coupled along a first longitudinal edge of the first plate and the second longitudinal edge of the third plate coupled to a first longitudinal edge of the second plate

one or more reinforcing cross members coupled between a second longitudinal edge of the first plate and a second longitudinal edge of the second plate to the third plate.

18. The generator of claim 17 wherein the second longitudinal edge of the first plate is retained by the core pole tip of the first core pole and the second longitudinal edge of the second plate is retained by the core pole tip of the second core pole.

19. The generator of claim 17 wherein the third plate is curved to conform to the cylindrical rotor frame.

20. The generator of claim 17 wherein the coil wound around the first core pole is restrained by a bonding material impregnated between the coil and the one or more passages through the first plate.